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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,728	02/20/2004	Yukihito Ichikawa	118811	3641

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EXAMINER
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GREENE, JASON M

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/781,728

Applicant(s)

ICHIKAWA ET AL.

Examiner

Jason M. Greene

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/04;7/04;12/05</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claims*

1. Claim 3 recites the phrase “wherein the  $D_i$  and  $D_o$  have a relation of  $D_i < D_o$ ” in line 2. However, the claim does not previously define  $D_i$  and  $D_o$ . For examination purposes,  $D_o$  and  $D_i$  were treated as the pore diameters recites in claim 2. If this treatment is correct, the Examiner suggests Applicants incorporate the definitions of  $D_i$  and  $D_o$  recited in claim 2 into claim 3 to improve the clarity of the claim language.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-5, 7-9, 11-13, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Published Patent Application JP 1-145377.

With regard to claims 1 and 3, JP 1-145377 discloses a honeycomb structure comprising porous partition walls (1b) disposed so as to form a plurality of cells (1a) extending in an axial direction, wherein defining that a porosity of the partition walls in a central portion (a) of a vertical section with respect to the axial direction of the honeycomb structure is  $P_i$  (42%) and that a porosity of the partition walls in an outer peripheral portion (c) of the section is  $P_o$  (44%), wherein  $P_i < P_o$ , wherein defining that a pore diameter of the partition walls in the central portion is  $D_i$  (3  $\mu\text{m}$ ) and that a pore diameter of the partition walls in the outer peripheral portion is  $D_o$  (14 $\mu\text{m}$ ), and wherein  $D_i < D_o$  in Figs. 1 and 2, Example 2 in the Table at the bottom of page 6, the English language abstract, and page 9, line 5 to page 11, line 12 of the English language translation.

With regard to claim 4, JP 1-145377 discloses a honeycomb structure comprising porous partition walls (1b) disposed so as to form a plurality of cells (1a) extending in an axial direction, wherein defining that a porosity and pore diameter of the partition walls in a central portion (a) of a vertical section with respect to the axial direction of the honeycomb structure are  $P_i$  (48%) and  $D_i$  (13  $\mu\text{m}$ ) and that a porosity and pore diameter of the partition walls in an outer peripheral portion (c) of the section are  $P_o$  (47%) and  $D_o$  (28  $\mu\text{m}$ ), wherein  $P_i > P_o$  and  $D_i < D_o$  in Figs. 1 and 2, Example 4 in the Table at the bottom of page 6, the English language abstract, and page 9, line 5 to page 11, line 12 of the English language translation.

With regard to claims 5, 7-9, 11-13, 15 and 16, JP 1-145377 teaches predetermined cells (1a) being plugged (2,3) at either of end faces of the honeycomb structure, wherein the honeycomb structure is monolithically formed in Figs. 1 and 2 and the English language abstract.

4. Claims 1-16 are rejected under 35 U.S.C. 102(a) as being anticipated by Japanese Published Patent Application JP 2003-25316.

With regard to claims 1 and 3, JP 2003-25316 discloses a honeycomb structure (1) comprising porous partition walls (2) disposed so as to form a plurality of cells (3) extending in an axial direction, wherein defining that a porosity of the partition walls in a central portion (11) of a vertical section with respect to the axial direction of the honeycomb structure is  $P_i$  (20%) and that a porosity of the partition walls in an outer peripheral portion (10) of the section is  $P_o$  (40%), wherein  $P_i < P_o$ , wherein defining that a pore diameter of the partition walls in the central portion is  $D_i$  (3  $\mu\text{m}$ ) and that a pore diameter of the partition walls in the outer peripheral portion is  $D_o$  (7  $\mu\text{m}$ ), and wherein  $D_i < D_o$  in Fig. 1, the English language abstract, and paragraphs [0026] to [0052] and [0092] to [0095] of the English language translation.

With regard to claim 2, JP 2003-25316 discloses a honeycomb structure (1) comprising porous partition walls (2) disposed so as to form a plurality of cells (3) extending in an axial direction, wherein defining that a porosity of the partition walls in a

central portion (11) of a vertical section with respect to the axial direction of the honeycomb structure is  $P_i$  (as low as 20%) and that a porosity of the partition walls in an outer peripheral portion (10) of the section is  $P_o$  (as high as 80%), wherein  $P_i < P_o$ , wherein defining that a pore diameter of the partition walls in the central portion is  $D_i$  (as high as 80  $\mu\text{m}$ ) and that a pore diameter of the partition walls in the outer peripheral portion is  $D_o$  (as low as 1  $\mu\text{m}$ ), and wherein  $D_i > D_o$  in Fig. 1, the English language abstract, and paragraphs [0031] to [0033] of the English language translation.

Specifically, since the reference teaches the sections 10 and 11 being formed such the porosity and pore diameters can vary in each section independently from 20 to 80% and 1-80  $\mu\text{m}$ , respectively, a honeycomb structure wherein  $P_i < P_o$  and  $D_i > D_o$  is seen as being within the disclosure of JP '316.

With regard to claim 4, JP 2003-25316 discloses a honeycomb structure (1) comprising porous partition walls (2) disposed so as to form a plurality of cells (3) extending in an axial direction, wherein defining that a porosity and pore diameter of the partition walls in a central portion (11) of a vertical section with respect to the axial direction of the honeycomb structure are  $P_i$  (as high as 80%) and  $D_i$  (as low as 1  $\mu\text{m}$ ) and that a porosity and pore diameter of the partition walls in an outer peripheral portion (10) of the section are  $P_o$  (as low as 20%) and  $D_o$  (as high as 80  $\mu\text{m}$ ), wherein  $P_i > P_o$  and  $D_i < D_o$  in Fig. 1, the English language abstract, and paragraphs [0031] to [0033] of the English language translation. Specifically, since the reference teaches the sections 10 and 11 being formed such the porosity and pore diameters can vary in each section

independently from 20 to 80% and 1-80  $\mu\text{m}$ , respectively, a honeycomb structure wherein  $P_i > P_o$  and  $D_i < D_o$  is seen as being within the disclosure of JP '316.

With regard to claims 5-16, JP 2003-25316 teaches predetermined cells (3) being plugged at either of end faces of the honeycomb structure, wherein the honeycomb structure is monolithically formed (i.e. as one piece) in the English language abstract and paragraphs [0018], [0027] and [0032] of the English language translation.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Noguchi et al., Ichikawa, Ito et al., Ogawa, Cutler et al., Kudo and JP 2006-16991 references disclose similar honeycomb structures.


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1724

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason M. Greene  
Primary Examiner  
Art Unit 1724

  
3/7/06

jmg  
March 7, 2006